Remarks

1. The Office Action of 17 February 2004 maintained the prior art rejection based on Beal and Gupta (US 4,385,033).

2.1. The specification has been amended to refer to the parent application and its status brought up-to-date.

2.2. Claims 9 and 12 have been amended to remove the language requiring the second hollow member (i.e. the tube) to be "disposed within the cage member" since the tube is no so disposed for its entire length (see drawings). Claim 11 has been cancelled. The language in claim 12 requiring the second hollow member to be disposed Claim 18 has been amended to specify the location of the separation device in a manner consistent with the disclosure at page 10. Claim 19 has been amended to bring it into better agreement with the disclosure at page 9. Claim 20 is limited to alumina balls as the preferred species of packing material.

3.1. The Examiner stated that Applicant's arguments with respect to the application of Gupta's teachings (open topped bypass tubes) to Beal's system (embedded bypass cages) had not been found to be persuasive because Gupta shows a system in which the bypass tubes enable the reactant flow to be successively passed from one catalyst bed to another (from 22a into 22b into 21). The Examiner stated that a catalyst bed of multiple lays reads on the claim language of "catalyst bed". As previously pointed out, this is a mischaracterization of the *express terms* of Gupta who refers to them as "catalyst beds" (plural): abstract, col. 2, lines 2, 3, 13, 14; col. 3, lines 27, 28, 30, 33, 45, 46, 67; column 4, lines 65-66 and in many other places. Thus, the Examiner distorts and manipulates Gupta's own express teachings and this the Examiner is not permitted to do. It is impermissible within the framework of 35 USC 103 to choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to a full appreciation of what the reference fairly suggests to the skilled person. In re Wesslau 147 USPQ 391 (CCPA 1965). According to proper, technically versed interpretation, as shown by Gupta's own terms, the catalyst zones divided from one another by distributor trays and possibly other

equipment (column 3, lines 42-44, tray 15) are catalyst "beds" not "layers". The record is devoid of any justification for the perverse construction applied by the Examiner.

3.2. The Examiner has followed up this point (Paragraph 10 of Action) by stating that Gupta, in Figures 1 and 1A shows as applicable prior art, a fixed bed reactor having layers of the catalyst bed not separated by any other equipment. The Examiner then continues by stating that Fig. 3 (it seems from the reference numerals used, the Examiner meant to refer to Fig. 2) shows an improvement of this prior art in which the bypass tubes in one portion of the fixed catalyst bed are used to bypass flow into a lower layer of the bed and that bypass tubes in that layer are used to bypass flow into another layer. The Examiner then concludes that this "is clearly applicable to the system of Beal comprising a fixed bed reactor wherein the layers of the catalyst bed are not separated by any other equipment...". Clearly, when one has made the initial assumption, as has the Examiner, that a piece of equipment used in one environment can be used in another, it certainly follows that it will be "applicable". The Examiner is arguing *post hoc ergo propter hoc*, which, as is well known, is a logical fallacy. The correct issue in these proceedings is whether the prior art discloses not merely the possibility but also the *desirability* of a certain expedient. *In re Nomiya* 184 USPQ 607, 613 (CCPA 1975). It is always essential to supply a *reason* why the prior art *should* be modified in the manner asserted by the Examiner as obvious because absent any reasoning showing why the adduced combination would have been considered desirable, the rejection will be based on forbidden hindsight, as it is here.

3.3. As previously pointed out, Beal does not suggest that bypasses without rupture disks would be effective and Gupta does not disclose or suggest that open bypasses would be useful in the form of open-topped tubes with larger open cges embedded in the catalyst bed. Not is it apparent that the use of Gupta's open-topped tubes would have been expected to have been useful in Beal's embedded cage system. At the very least, the Examiner has not adduced any substantial evidence why any such success would have been expected on the basis of the prior art teachings. The expectation of success must be based on the teachings of the prior art, not applicants disclosure. In re Dow Chem. Co.

837 F.2d 469, 473; 5 USPQ 2d 1529, 1531, (Fed. Cir. 1988). Given that proceedings in the agency are to held to the substantial evidence standard, the conclusion of obviousness is not well founded. In re Zurko, 258 F.3d 1379, 1386, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001); Gechter v. Davidson 43 USPQ 2d 1030, 1033 (Fed. Cir. 1997; In re Gartside, 203 F.3d 1305, 1314, 53 USPQ2d 1769, 1774 (Fed. Cir. 2000); In re Lee 277 F 3d 996, 61 USPQ 2d 1430 (Fed. Cir. 2002). Gupta discloses only that totally open tubes extending all the way through the bed to the open inter-bed zone would be useful to bypass the bed when it becomes fouled. Gupta does not disclose (or suggest) that the open tubes could be used with their lower ends opening into a cage embedded in the catalyst bed. The approach is different: the total bypass tubes of Gupta, although utilizing pressure-controlled bypass operation, do so in a simple all-or-nothing manner, permitting the fouled bed to be totally removed from the catalytic system when the upper layer of the beds is fouled. The present invention, however, continues use of the bed by effecting bypass flow into the bed itself through the cages which assist in the pressure control. Conceptually, the present system and method can be seen as a combination of the expedients taught by Beal and Gupta but – and this is important – there is nothing in Beal or Gupta which teaches the desirability of making the conceptual combination and this is what is contrary to the requirements of 35 USC 103, correctly interpreted and applied. Piecemeal reconstruction of prior art patents in light of applicants disclosure is improper. In re Wesslau, above.

3.4. The Examiner's gives no factual justification for applying the Gupta open-topped bypass tubes to Beal's embedded-cage system (page 4 of Action). There is a statement that "It would have been obvious....for the purpose of providing a low pressure drop bypass and several fold increase in on-time of the reactor, and increasing system reliability". This analysis confuses cause and effect: the Examiner considers that because a certain effect is known and desirable, its cause – the manner of achieving it - must be clear. Not so, the exercise of the creative faculty is required in the adaptation of an expedient known only in one environment to another. The Examiner's position is founded in the logical fallacy mentioned above. The Examiner might be on better ground if, for example, Gupta taught the general applicability of open-topped bypass tubes but this he does not do; Gupta teaches only the utility of open-topped bypass tubes in the

environment of a complete bed bypass. Given the differences in pressure drops between the Beal embedded bypass and the Gupta total bypass systems (Beal's embedded tubes will have a pressure drop different to Gupta's because Beal's tubes open into the bed where there is a greater pressure drop than into the open interbed zone where Gupta's tubes discharge), there is no reasonable assurance that open-topped tubes of the Gupta type would be effective in an embedded cage system of the Beal type, *regardless of what advantages the open-topped tubes were known to possess in a different environment.* In short, the Examiner's analysis is simplistic and takes no account of the realities faced by real-world reactor engineers who have to deal with issues such as pressure drop in trying to resolve such problems as catalyst bed fouling. Furthermore, the Examiner's position partakes of that judicious selection, that careful cherry picking of the choicest fruit, which is discountenanced as a basis for a proper conclusion of obviousness. In re Sivaramakrishnan 213 USP 441 (CCPA 1982). In re Wesslau, above.

3.5. It is for reasons such as this that the court has set the requirement that the prior art in and of itself should teach the *desirability* of a given expedient not merely its possibility, as noted above. Here, while the Beal and Gupta references may teach the mechanical possibility of adopting the open-topped embedded cage bypass system, they do not, nevertheless, teach the desirability of adopting their respective technical expedients in the different environment of the other and there is good reason (pressure drop alone) why the skilled reactor engineer would not, without the exercise of the creative faculty, have recognized the desirability of making the adduced combination. For these reasons, the rejection based as it is, on the Beal and Gupta references without more, is considered unjustified and should be withdrawn.

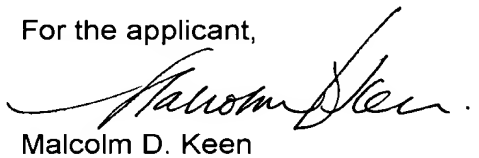
4.1. Further, reconsideration is requested with specific reference to claims 17, 18, 19 and 20. Claim 17, like claim 18 (as amended), requires the tubes have a separation device such as a cap at their tops. The provision of separation devices such as caps is antithetic to the Gupta type of system where liquid flow receptacles (26) are disposed at the tops of the bypass tubes. These flow receptacles are used to form a liquid seal which precludes gas flow into the bypass tubes during initial operation (col. 3, lines 45-62). Thus, the Gupta

system relies upon the provision of these liquid seal receptacles for proper operation. The receptacles are not separators and to substitute separators such as caps or cyclones for the liquid seal receptacles would render the Gupta system wholly or partly inoperative. Gupta, therefore, cannot be used to justify any rejection of claim 18.

4.2. Claims 19 and 20 deal with the case where the embedded cage is surrounded by larger size packing which permits the fluid to pas out into the lower portion of the catalyst bed more easily. Gupta clearly shows no such measure since his bypass tubes open out into the interbed zone and Beal, in his teaching of an embedded cage system, is to the contrary: Beal's balls are inside the cage, not outside it, as required by claim 20. Claims 19 and 20 are therefore not rendered obvious by the Gupta and Beal references.

5. In view of the above amendments and remarks, Applicant submits that the rejection based as it is upon Beal and Gupta is not warranted by the facts and should be withdrawn as not based upon substantial evidence. Reconsideration is therefore requested.

For the applicant,



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